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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/658,874	09/10/2003	Samir Kumar	D/A2425	3222
25453	7590	12/06/2004		
PATENT DOCUMENTATION CENTER XEROX CORPORATION 100 CLINTON AVE., SOUTH, XEROX SQUARE, 20TH FLOOR ROCHESTER, NY 14644			EXAMINER ZACHARIA, RAMSEY E	
			ART UNIT 1773	PAPER NUMBER

DATE MAILED: 12/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/658,874

Applicant(s)

KUMAR ET AL.

Examiner

Ramsey Zacharia

Art Unit

1773

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 22 September 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) 22 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-21 and 23-31 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

#### ***Inventorship***

2. In view of the papers filed 13 August 2004, it has been found that this nonprovisional application, as filed, through error and without deceptive intent, improperly set forth the inventorship, and accordingly, this application has been corrected in compliance with 37 CFR 1.48(a). The inventorship of this application has been changed by adding Scott M. Silence, Michael J. Duggan, and Bernard A. Kelly as inventors.

The application will be forwarded to the Office of Initial Patent Examination (OIPE) for issuance of a corrected filing receipt, and correction of Office records to reflect the inventorship as corrected.

#### ***Election/Restrictions***

3. Applicant's election with traverse of Group I in the paper filed 22 September 2004 is acknowledged. The traversal is on the ground(s) that the Examiner has failed to establish a serious burden in examining all the claims together. This is not persuasive because the inventions have acquired a separate status in the art as was shown by their different classification (Group I in class 428/411.1 and Group II in class 427/212). That the inventions have acquired a
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Art Unit: 1773

separate status in the art constitutes a *prima facie* showing of a serious burden on the Examiner.

See MPEP § 803.

***Claim Rejections - 35 USC § 112***

4. Claim 9 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. Claim 9 is rendered indefinite because it is unclear how the matrix can be present in any amount other than 100 weight percent based on the weight of the matrix.

***Claim Rejections - 35 USC § 102***

6. Claims 1-6, 9-21, 23, 24, 26-30 are rejected under 35 U.S.C. 102(b) as being anticipated by Drappel et al. (U.S. Patent 6,391,509).

Drappel et al. teach a carrier comprising a core and a polymer coating which comprises a mixture of a coating polymer and a conductive polymer (column 5, lines 47-49). The coating polymer may be formed of a mixture of polymers, including polymers that are not in close proximity in the triboelectric series and mixtures of about 2 to 7 polymer (column 5, lines 49-55). The conductive polymer may comprise as little as about 5 wt% of the total weight of the coating (column 5, line 66-column 6, line 5). The core has a diameter of about 30 to 100  $\mu\text{m}$  (column 6, lines 6-7). The core is made of iron, steel, or a ferrite (column 6, lines 7-8). The coating polymer may be, for example, a styrene polymer, polymethyl methacrylate, or a mixture of polymethyl methacrylate and polytrifluoroethyl methacrylate (column 6, lines 8-19). The

polymer coating is present in an amount of from about 0.5-10 wt% or about 1-5 wt% of the carrier (column 6, lines 19-22). The carrier may have a conductivity of about  $10^{-15}$  to  $10^{-4}$  (ohm-cm)<sup>-1</sup> and a triboelectric charge value of about -60 to 60 microcoulombs/gram (column 6, lines 22-26). The carrier may be combined with a toner to produce a developer (column 7, lines 12-13). The toner may comprise a thermoplastic resin, colorant, and other optional components (column 7, lines 15-18). The conductive polymer may be any of a number of commercially available conductive polymers (column 8, lines 62-64). Suitable commercially available conductive polymers include Eeonomer (column 9, lines 56-60), which is the same material used in the instant invention (see pages 13 and 14 of the instant specification, particularly page 14, lines 6-9 in which Eeonomer is described as being comprised of intrinsically conductive polypyrrole or polyaniline polymers deposited into carbon black matrix by an in situ polymerization.

Regarding claim 9, Drappel et al. do not teach the amount of carbon black present. However, Drappel et al. do teach using the same conductive material as is used in the instant invention (Eeonomer) and the carrier of Drappel et al. has the same conductivity and triboelectric charge values as that of the instant invention. Conductivity and triboelectric charge values are material properties that are functions of the type and amount conductive materials. Since the same conductivities and triboelectric charge values are obtained using the same material (Eeonomer), the amount of carbon black in the carrier of Drappel et al. should be the same as that recited in instant claim 9.

***Claim Rejections - 35 USC § 103***

7. Claims 7, 8, and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Drappel et al. (U.S. Patent 6,391,509).

Drappel et al. teach all the limitations of claims 7, 8, and 31 as outlined above, except for teaching that the polypyrrole has molecular weights as recited in claims 7, 8, and 31.

However, Drappel et al. do teach that the polyaniline as the conductive polymer may have a weight average molecular weight of about 10,000-400,000, about 20,000-100,000, or about 22,000-75,000 with an  $M_w/M_n$  ratio of about 1.4 to 2 (column 5, lines 56-62). Drappel et al. further disclose that polyaniline and polypyrrole are functionally equivalent materials for the purpose of their invention (column 7, lines 24-28).

One skilled in the art would be motivated to use a polypyrrole having a weight average molecular weight of about 22,000-75,000 with an  $M_w/M_n$  ratio of about 1.4 to 2 in place of the polyaniline having a weight average molecular weight of about 22,000-75,000 with an  $M_w/M_n$  ratio of about 1.4 to 2 taught by Drappel et al. since Drappel et al. teach the equivalence of polyaniline and polypyrrole.

8. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Drappel et al. (U.S. Patent 6,391,509) in view of Viswanathan et al. (U.S. Patent 6,764,617).

Drappel et al. teach all the limitations of claim 25, as outlined above, except for the use of a polyaniline attached to lignin. However, Drappel et al. do teach that the polyaniline may be doped with an organic acid, preferably a sulfonic acid (column 8, lines 65-67).

Viswanathan et al. is directed to a composition comprising polyaniline doped with a lignosulfonic acid compound (column 1, lines 61-64). Lignosulfonic acid compounds are abundant and inexpensive (column 5, lines 15-16).

One skilled in the art would be motivated to use a lignosulfonic acid as the sulfonic acid of dopant Drappel et al. because it is inexpensive and known to be suitable for doping polyaniline.

### *Response to Arguments*

9. Applicant's arguments filed 22 September 2004 have been fully considered but they are not persuasive.

The applicants argue that Drappel et al. do not show that their carrier can contain conductive polypyrrole or polyaniline polymers deposited into carbon black matrix.

This is not persuasive because Drappel et al. appears to use the same material, Eeonomer from Eeonyx, as is used in the instant invention. According to the instant specification (see page 14, lines 6-9), Eeonomer is intrinsically conductive polypyrrole or polyaniline polymers deposited into carbon black matrix by an in situ polymerization.

Regarding the rejection over Drappel et al. in view of Viswanathan et al., the applicants

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argue that Viswanathan et al. is directed to a composition and not a carrier coating. The applicants further argue that carrier technology is very complex and unpredictable and undue experimentation would be involved in combining Drappel et al. and Viswanathan et al.

This is not persuasive because the allegation that carrier technology is very complex and unpredictable appears to run counter to the teachings of the prior art. In particular, Drappel et al.

Art Unit: 1773

do not require any particular dopants as would be expected if the carrier technology is very complex and unpredictable. Rather Drappel et al. teach doping their conductive polymer with an organic acid in general. Viswanathan et al. teaches an abundant and inexpensive lignosulfonic acid compound that is used to dope conductive polymers. Therefore, since Drappel et al. do not require any particular organic acid as a dopant and Viswanathan et al. teach an inexpensive organic acid that may be used as a dopant for conductive polymers, it would be obvious to one skilled in the art to use the inexpensive acid of Viswanathan et al. as the organic acid dopant.

### *Conclusion*

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

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CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.



Art Unit: 1773

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ramsey Zacharia whose telephone number is (571) 272-1518.

The examiner can normally be reached on Monday through Friday from 9 to 5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Deborah Jones, can be reached on (571) 272-1535. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



**Ramsey Zacharia**  
**Primary Examiner**  
Tech Center 1700

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